REMARKS

In its simplest aspect the instant invention comprises a magnetically operated optoelectronic logic gate. "A unique feature of this switch is that it is sensitive to inputs having different physical properties. One input is electromagnetic radiation in the ultraviolet or visible wavelength range and the other input is a magnetic field ... [which] allows information transmitted in different media to be combined and processed." (page 4, lines 14-17) The readout can be optical or electric energy. The switch itself is embodied in a photoreactive molecule capable of forming transient species when activated by an electromagnetic radiation signal, and whose lifetime is modified in the presence of a magnetic field. In one embodiment, the molecule is carotene-porphyrin-fullerene.

The Gudesen et al. patent ("Gudesen") relates to "a plurality of optical logic elements, wherein the optical logic elements particularly are multistate, multistable optical logic elements ... under the influence of an impressed magnetic, electromagnetic ***or*** electrical field ***or*** supplied energy ..." (abstract; emphasis added) While Gudesen repeatedly gives this list as a choice of energy inputs, Applicants could find no mention of a "magnetically activated optoelectronic logic gate" and request that the Examiner help the Applicants identify that embodiment. Applicants could not find any inputs of different types of energy (like the claimed electromagnetic and magnetic inputs of the instant invention), just different optical wavelengths. To that end, Gudesen presents examples of AND gates that feature only optical inputs (Tables III and IV, cols. 19 and 20).

Turning now to Gust et al. (1997), Applicants agree that Gust discloses that the triad of a carotene, a fullerene and a chromophore such as porphyrin can be used in photo-induced electron transfer devices for optical switching. However, the Applicants wish to emphasize that their article says nothing about the possibility of using a magnetic input. Since Gudesen is limited to teaching optical outputs causing stable chemical changes, its combination with Gust does not teach or suggest the inventive switch which utilizes not only an optical input but also a magnetic input.

And finally, turning to the Song reference, it appears to take input from a variety of optical wavelengths, converted into electrical signals before storage. There are multiple inputs, but not inputs of two different forms of energy, as are handled by the instant invention.

Applicants agree that while Song and Lin may be pertinent, neither detracts from the patentability of the instant invention.

Applicants have made an earnest attempt to place this case in condition for allowance. In light of the remarks set forth above, Applicants respectfully request reconsideration and allowance of claims 1 and 7-21. If there are matters which can be discussed by telephone to further the prosecution of this Application, Applicants invite the Examiner to call the undersigned attorney at the Examiner's convenience.

A petition for extension of time is attached to this paper, along with the respective extension fee due. The Commissioner is hereby authorized to charge any additional fees that may be due in connection with this filing to Deposit Account No. 17-0055.

Respectfully submitted,
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